

demographic characteristics and delays for each STEMI patient. Mean and median calculations were computed in an Excel spreadsheet.

Results: Forty STEMI cases presented to our ED from October 2006 to April 2007. PTCA was the treatment chosen for a majority of patients (37/40), while thrombolysis was performed in three cases. A rescue PTCA was performed on one of the thrombolysis cases. The mean delay from the arrival of the patient to the first electrocardiogram (EKG) was 11 minutes (median time nine minutes), and six EKGs were obtained with more than 15 minutes delays, exposing some problems pertaining to processes. The mean door to drug time was 24 minutes for thrombolysis (median time 20 minutes). The mean delay between the patient's arrival at our ED and his departure for the PTCA center was 54.3 minutes (median 51 minutes), while the mean delay between the diagnostic EKG and the patient's departure for the PTCA center was 42.5 minutes (median 40 minutes). The transport to the PTCA center lasts overall 20 minutes and the process time from the arrival to the PTCA center to balloon expansion is invariably 30 minutes. Overall, the mean door to balloon time for our STEMI patients was 111 minutes. Only seven patients (20%) had their angioplasty completed within 90 minutes.

Conclusion: Although some adjustments are necessary to standardize and speed up EKG completion and patient transfer, for our population, door to balloon times of less than 90 minutes are not very realistic. Rather than automatically transfer our patients for PTCA, STEMI treatment should be individualized, as some patients could benefit from early thrombolysis. In this aspect, therapy should be selected according to age, territory of the infarct and presentation delay.

## 158 Is Bioelectrical Impedance Analysis Helpful for Heart Failure Management in the Emergency Department?

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Study Objectives: Decompensated heart failure (DHF) is characterized by the early accumulation of fluid in the interstitial space of the lungs and of whole body. Nevertheless, diagnostic errors in patients with respiratory symptoms are frequent and the diagnosis of DHF can remain unsuspected in patients with chronic obstructive pulmonary disease (COPD). So, appropriate selection of patients with DHF, especially among those obese and elderly, represents a diagnostic challenge for physicians. Recently, B-type natriuretic peptide (BNP) test was validated in this setting and helps to uncover unsuspected DHF in patients with COPD. Because the changes of fluid distribution are well estimated by Bioelectrical Impedance Analysis (BIA), an instantaneous non-invasive patient-bed method, the purpose of this study is to compare the ability of BIA and B-type natriuretic peptide (BNP) in differentiating acute dyspnea due to DHF from COPD.

Methods: We selected 80 patients (mean age  $68.2 \pm 6.8$ , 44 male) presenting to emergency department with acute shortness of breath on exertion or at rest. Patients underwent a diagnostic workup including BNP testing, segmental (Seg) and whole-body (WB) BIA with resistance (R) and reactance (Xc) measurements. After the clinical assessment the patients underwent appropriate medical treatment. After hospital discharge an independent expert team of physicians, blinded to BIA measurements, established the final diagnosis of DHF or COPD on the basis of clinical records and of all available diagnostic results using the diagnostic criteria of the AHA.

Results: Patients with DHF (57%) showed in comparison with COPD significantly ( $p < .001$ ) higher BNP values ( $546.8 \pm 397$  vs.  $56.3 \pm 46$  pg/ml), a significant ( $p < .001$ ) reduction of Seg ( $37.8 \pm 9.1$  vs.  $63.4 \pm 9.1$ ) and WB ( $433.6 \pm 57.6$  vs.  $523.2 \pm 41.9$ ) R (ohm) respectively. A significant correlation ( $p < .001$ ) of BNP with Seg ( $r = -.60$ ) and WB ( $r = -.61$ ) R was observed only in DHF. BIA (Accuracy 90%, Positive Likelihood Ratio 8.7), as BNP (Accuracy 94%, Positive Likelihood Ratio 11.2), was accurate in differentiating DHF from COPD, also in patients with preserved left systolic function. Moreover a significant correlation between bioelectrical parameters and NYHA functional class ( $p < .01$ ) was observed. Multiple regression analysis showed that Whole Body and segmental BIA remained strong predictors of DHF alone or in combination with BNP.

Conclusion: Our data suggests that if BNP assay remains the more important testing in DHF diagnosis, Seg and WB BIA represent a reasonable, accurate, simple and rapid diagnostic adjunct to clinical judgment of physician in differential diagnosis of shortness of breath and fatigue due to DHF from COPD. It is overall an useful tool to determine the severity of decompensation.

## 159 Mean Presentation Times for Acute ST-Elevation Myocardial Infarction Patients Presenting to a Rural Hospital in Malaysia

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Study Objective: Cardiovascular disease is one of the most important causes of death in Malaysia and the rate is on the increase. In developing countries such as Malaysia, the primary mode for revascularization is via thrombolytic therapy. This is only effective when instituted within a small time window and out-of-hospital delay is a major concern.

Methods: One hundred and thirty three consecutive patients presenting with acute ST elevation myocardial infarction to the coronary care unit of Hospital Tengku Ampuan Afzan, Kuantan, Malaysia were enrolled into a prospective observational study.

Results: The majority of patients were male 88.7%, presented with anterior or antero-septal myocardial infarct 66.9% with a mean age of  $56.4 \pm 10.3$  years. The mean presentation time (house-to-door) was  $222.6 \pm 282.3$  minutes and the mean time to be seen by a medical officer on Cardiology call was  $49.6 \pm 57.2$  minutes.

Conclusion: The mean house-to-door time was 222.6 minutes or 3 hrs 42 mins. This delay in reaching the hospital is attributed to 3 major factors anecdotally. Firstly is the prolonged transportation delay, secondly is the delay in getting referrals from primary care clinics and finally, the lack of information on the need for early intervention in acute myocardial infarction amongst the population.

## 160 Public Knowledge of Cardiopulmonary Resuscitation in Republic of Slovenia

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Study Objectives: The aim of this study was to determine how well the people in Republic of Slovenia are informed about and prepared to intervene in case of cardiac arrest.

Methods: Approval was obtained from Slovenian Ethical Committee. The study was a cross sectional survey of Republic of Slovenia (population about 2 million). Computer assisted telephone interview (CATI) was used as a method of administration. Telephone numbers from a CD-ROM containing all listed phone numbers for the whole country were randomly selected. The questionnaire contained sections regarding participant demographics, knowledge of cardiac arrest signs and of cardiopulmonary resuscitation (CPR), CPR training, and the awareness of emergency contact number. The sampling frame was designed so that the final sample would consist of 500 adult (over 18 years) participants. This sample allowed for a sampling error of  $\pm 1-4.4\%$  (95% confidence interval). All data were analyzed using the statistical package SPSS 14.0. Data were analysed by Student t test and  $\chi^2$  statistics and expressed as absolute numbers, percentages or a mean and 95% confidence intervals. The level for statistical significance was set at  $< 0.05$ .

Results: A total of 2914 households were contacted in August and September of 2006. There was no answer in 754 telephone calls, 1165 subjects were not willing to participate, and 495 subjects didn't match the study criteria. The questionnaire was completed in full by 500 (30%) respondents. Complete demographic information was collected to determine any difference in responses in the population. Seventy percent of subjects had been taught CPR (CPR training is a compulsory component of the Slovenian Driver's License test), but nearly eighty percent of them had CPR training more than 10 years ago. Overall knowledge was highest for those taught in the previous year. Older subjects were less likely to have learned CPR than younger subjects. In cardiac arrest scenario 77% of respondents stated they would start to resuscitate the victim, 54% of subjects would call for help, 49% would give rescue breaths and 39% would give chest compressions. One third of respondents would wrongly put the cardiac arrest victim in recovery position. When asked about CPR procedures more precisely, CPR knowledge was very poor. Only 1.2% knew accurate rate at which to perform chest compressions, only 2.2% knew the correct compressions-to-ventilations ratio for adult CPR, and only 3 out of 500 subjects (0.6%) knew both. Only 60% of subjects knew emergency telephone number 112.

Conclusion: Results of this study suggest that people in Republic of Slovenia are willing to initiate CPR but their knowledge is insufficient and additional educational campaigns should be instituted in the community to promote recognition of and response to cardiac emergencies.